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EXAMINER	
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/929,627	DAVID C. BANKS	
	Examiner	Art Unit	
	Nguyen Ngo	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The attempt to incorporate subject matter into this application by reference a method for trunking pairs of ISLs (page 10 lines 1-3) is improper because applicant has failed to provide the U.S. Patent Application Serial Number or Patent Number.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 3, 5, 6, 7, 14, 16, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Yunten (U.S Patent No. 5,867,499), hereinafter referred to as Yunten.

Regarding claim 1, Yunten discloses a method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches (plurality of small switches) coupled to interface units (col2 lines 40-40) for routing ATM cells with a generic addressing scheme that operates transparently to the physical location of the source and destination (method for sending data through a Fibre Channel switch, the data having a source and destination, figure 1 and figure 2, col1 line 6-10). Yunten further discloses:

a VC switch (virtual connection switch correlating to first small switch) that receives ATM cells (col4 line 46) from an interface unit, which act as input and output

locations i.e. sources and destinations, for the ATM switch (receiving the data from the source at a first small switch, col4 lines 25-26).

that the interface units, called for description purposes a "source interface unit," selects a source or starting virtual-channel identifier (VCI) for an ATM cell to be switched within the ATM switch (choosing a first virtual channel from a set of possible virtual channels, each virtual channel being available for use with general data flow, col4 lines 59-64).

that a ATM header includes virtual connection identifier (VCI) label which indicates that transport connection (adding information identifying the first virtual channel to the data, col1 lines 24-28).

that the source VC switch is viewed as the primary switch or zero-position switch, and all other VC switches have an offset position relative to the source switch. Yunten provides an example of having the VC switch next to the source VC switch or zero-position switch, be viewed as relative no. 1 by the source VC switch (col5 lines 55-65), thus configuring each VC switch to route cells according to the same relative sequencing technique (sending the data and the information identifying the first virtual channel from the first small switch to a second small switch, col3 lines 59-60).

Regarding claim 2, Yunten discloses the VC switches are electronic modules that contain a microprocessor (a processor connected to each of the plurality of small switches, col4 lines 64-66).

Regarding claim 3, Yunten discloses routing ATM cells with a generic addressing scheme (the data is a data frame, figure 1, col1 line 6-10). And that an ATM header includes virtual connection identifier (VCI) label which indicates that transport connection which is selected by the "source interface unit" (the information identifying the first virtual channel is added to an inter-frame fill word, col1 lines 24-28). It is noted that the applicant states that the FILL is not part of the data frame, but contains information about the data frame that follows the particular FILL, which correlates to an ATM header that precedes the data (the inter-frame fill word is sent from the first small switch to the second small switch prior to the data frame).

Regarding claim 5, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells from the source interface units to destination interface units (first virtual channel is chosen based on the source of the data, col4 lines 2-6).

Regarding claim 6, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells from the source interface units to destination interface units (first virtual channel is chosen based on the destination of the data, col4 lines 2-6).

Regarding claim 7, Yunten discloses:

interface units (set of source ports) that are connected to an external network and that each interface unit have ports that accept messages from elements within the external network (col4 lines 24-30) coupled to VC switches (the first small switch has a set of ports capable of connecting to external devices, col4 lines45-46).

a VC switch (virtual connection switch correlating to first small switch) that receives ATM cells (col4 line 46) from an interface unit, which act as input and output locations i.e. sources and destinations, for the ATM switch (the data is received at the first small switch from the source through a first source port of the set of external ports, col4 lines 25-26).

that the interface units, called for description purposes a "source interface unit," selects a source or starting virtual-channel identifier (VCI) for an ATM cell to be switched within the ATM switch (the first virtual channel is chosen from the set of possible virtual channels based on the identity of the first source port, col4 lines 59-64).

Regarding claim 14, Yungten discloses that each VC switch executes the same connection setup algorithm to route cells ATM cells (col3 lines60-61). Thus Yungten discloses all the limitations of claim 14 as discussed in claim 1. Yungten also discloses that if the intended destination is an interface unit not directly coupled to the source VC switch, the source VC switch converts the starting VCI to an intermediate VCI (choosing a second virtual channel from a set of possible virtual channels, Abstract). It is noted

that the method of claim 1 pertaining to the first switch may be implemented with regards to the second switch of claim 14.

Regarding claim 16, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells from the source interface units to destination interface units (second virtual channel is chosen based on the destination of the data, col4 lines 2-6).

Regarding claim 20, Yunten discloses that a destination VC switch (third small switch) receives the ATM cell and converts the intermediate VCI to a final VCI, and delivers the ATM cell to the destination (receiving the data from the second small switch at the third small switch and sending the data from the third small switch to the destination, Abstract).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 8, 9, and 10 are rejected under 35 U.S.C. 103(a) as being anticipated by Yunten (U.S Patent No. 5,867,499), hereinafter referred to as Yunten.

Regarding claim 8, Yungten discloses that the switch have separate ports for each of its connections with VC switches and routes the ATM cell to appropriate destination VC switches (number of virtual channels in the set of possible virtual channels is equal to or greater than the number of source ports in the set of source ports, each source port is associated with at least one virtual channel, col7 lines 55-60). It should be obvious to a person skilled in the art that the first virtual channel be associated with the first source port.

Regarding claim 9, Yungten discloses that the switch have separate ports for each of its connections with VC switches and routes the ATM cell to appropriate destination VC switches (each source port is associated with no more than one virtual channel, col7 lines 55-60).

Regarding claim 10, Yungten discloses that the switch have separate ports for each of its connections with VC switches and routes the ATM cell to appropriate destination VC switches (number of virtual channels in the set of possible virtual channels is equal to the number of source ports in the set of source ports, each source port is associated with at least one virtual channel, col7 lines 55-60). It should be obvious to a person skilled in the art that the first virtual channel be associated with the first source port.

6. Claims 4 is rejected under 35 U.S.C. 103(a) as being anticipated by Yunten (U.S Patent No. 5,867,499), in view of Kilkki et al. (U.S Patent No. 6,411,617), hereinafter referred to as Yunten and Kilkki.

Regarding claim 4, Yunten fails to disclose the limitation of the data having a priority level, each virtual channel having a priority level, and having the priority levels of the data and each virtual channel within the set of possible virtual channels be the same.

Kilkki however discloses a method to distinguish the priority levels of ATM cells using the virtual channel identifier (VCI) of the ATM cell. Thus certain virtual channels would be reserved for a particular priority level (priority levels of data and virtual channel be the same, col13 lines 10-20).

It will thus be obvious to a person skilled in the art to incorporate the method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches (plurality of small switches) for routing ATM cells disclosed by Yunten with the method to distinguish the priority levels of ATM cells disclosed by Kilkki, to communicate and distinguish data with different QoS or priority levels.

7. Claims 11, 15, 21, 23-36, and 46-49 are rejected under 35 U.S.C. 103(a) as being anticipated by Yunten (U.S Patent No. 5,867,499), in view of Bandai et al. (U.S Patent No. 6,768,741), hereinafter referred to as Yunten and Bandai.

Regarding claim 11, Yunten fails to disclose storing the received data in a buffer associated with the first source port.

Bandai however discloses of transmitting ATM cells into an input port (#1), to it's associated cell buffer (7a1) of the switch element to be temporarily stored (storing the received data in a buffer associated with the first source port, col3 lines 63-66) and gives the motivation for incorporating the buffer for traffic control.

It will thus be obvious to a person skilled in the art to incorporate the method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches (plurality of small switches) for routing ATM cells disclosed by Yunten with the method to store ATM cells in a cell buffer disclosed by Bandai, to effectively carry out traffic control (congestion prevention) and manage the ATM cells in a switch.

Regarding claim 15, Yunten and Bandai disclose all the limitations of claim 15 as discussed in claim 11. Bandai discloses of transmitting ATM cells into an input port (#1), to it's associated cell buffer (7a1) from a plurality of ports and cell buffers of the switch element to be temporarily stored (each of the set of possible virtual channels has a respective buffer and further comprising storing the data in the second small switch in a buffer associated with the first virtual channel, figure 1 and col3 lines 63-66). It should

be obvious to a person skilled in the art that each port is associated with a virtual channel, which is associated with a specific buffer.

Regarding claim 21, Yunten and Bandai disclose all the limitations of claim 21 as discussed in claim 15. Bandai discloses of transmitting ATM cells into an input port (#1), to it's associated cell buffer (7a1) from a plurality of ports and cell buffers of the switch element to be temporarily stored (storing the data in the third small switch in a buffer associated with the second virtual channel, figure 1 and col3 lines 63-66). It should be obvious to a person skilled in the art that each port is associated with a virtual channel, which is associated with a specific buffer.

Regarding claim 23, Yunten discloses:

interface units (plurality of ports) that are connected to an external network and that each interface unit have ports that accept messages from elements within the external network (a plurality of ports, a plurality of source ports capable of connecting to external devices, the plurality of source ports being a subset of the plurality of ports, col4 lines 24-30).

that the interface units, called for description purposes a "source interface unit," selects a source or starting virtual-channel identifier (VCI) for an ATM cell to be switched within the ATM switch based on the destination (logic operable to determine an identification of a destination of the data and to determine an identification of a virtual

channel available for general data flow on which to output received data, col4 lines 59-64).

Yunten however fails to disclose the limitations of a plurality of buffers, each buffer being associated with a respective virtual channel.

Bandai however discloses of transmitting ATM cells into an input port (#1), to it's associated cell buffer (7a1), of a plurality of ports and buffers, of the switch element to be temporarily stored (plurality of buffers, each buffer being associated with a respective virtual channel, col3 lines 63-66) and gives the motivation for incorporating the buffer for traffic control. It should be obvious to a person skilled in the art that each port is associated with a virtual channel, which is associated with a specific buffer.

It will thus be obvious to a person skilled in the art to incorporate a VC switch (Fibre Channel small switch) for routing ATM cells disclosed by Yunten with the buffers to store ATM cells associated with a specific port disclosed by Bandai, to effectively carry out traffic control (congestion prevention) and manage the ATM cells in a switch.

Regarding claim 24, Yunten and Bandai disclose all the limitations of claim 24. More specifically, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells from the source interface units to destination interface units

(identification of the virtual channel available for general data flow is determined based on the source of the data, col4 lines 2-6).

Regarding claim 25, Yunten and Bandai disclose all the limitations of claim 25. More specifically, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells from the source interface units to destination interface units (identification of the virtual channel available for general data flow is determined based on the destination of the data, col4 lines 2-6).

Regarding claim 26, Yunten and Bandai all the limitations of claim 25. More specifically, Yunten discloses that the microprocessor of each VC switch is coupled with affiliated memory for storing software instructions and that the source interface unit selects the starting VC from a table established during configurations (small switch comprising a memory storing an identity of a virtual channel associated with each source port and available for general data flow, col5 line 1-2). It should be obvious to a person skilled in the art that this table be located in the affiliated memory.

Regarding claim 27, Yunten and Bandai all the limitations of claim 27. More specifically, Yunten discloses:

a VC switch that receives ATM cells (col4 line 46) from an interface unit (source port), which act as input and output locations i.e. sources and destinations, for the ATM

switch (receiving the data through a first source port of the plurality of source ports, col4 lines 25-26).

that the interface units, called for description purposes a "source interface unit," selects a starting virtual-channel identifier (VCI) for an ATM cell to be switched within the ATM switch (retrieve a first virtual channel identifier identifying a first virtual channel associated with the first source port, col4 lines 59-64).

that a ATM header includes virtual connection identifier (VCI) label which indicates that transport connection (add to the data information identifying the first virtual channel, and output the data (routing ATM cell) and the information identifying the first virtual channel, col1 lines 24-28).

Regarding claim 28, Yunten and Bandai all the limitations of claim 27. More specifically, Yunten discloses selecting the starting VCI from a table established during configuration of the switch and generate an ATM cell and associated a starting VCI code for the cell (retrieve information identifying a first virtual channel from a routing table, add to the data the information identifying the first virtual channel, and output the data, and the information, col5 lines 2-12) for routing the ATM cell.

Regarding claim 29, Yunten and Bandai all the limitations of claim 29. More specifically, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM

switch to route ATM cells from the source interface units to destination interface units (first virtual channel is associated with a destination of the data, col4 lines 2-6).

Regarding claim 30, Yunten and Bandai all the limitations of claim 30. Yunten discloses routing ATM cells with a generic addressing scheme (the data is a data frame, figure 1, col1 line 6-10). And that an ATM header includes virtual connection identifier (VCI) label which indicates that transport connection which is selected by the "source interface unit" (the information identifying the first virtual channel is added to an inter-frame fill word, col1 lines 24-28). It is noted that the applicant states that the FILL is not part of the data frame, but contains information about the data frame that follows the particular FILL, which correlates to an ATM header that precedes the data (the inter-frame fill word is sent from the first small switch to the second small switch prior to the data frame).

Regarding claim 31, Yunten and Bandai all the limitations of claim 31. More specifically Bandai discloses of transmitting ATM cells into an input port (#1), to it's associated cell buffer (7a1), of a plurality of ports and buffers, of the switch element to be temporarily stored (storing the data in a buffer associated with a virtual channel, col3 lines 63-66). It should be obvious to a person skilled in the art that each port is associated with a virtual channel, which is associated with a specific buffer.

Regarding claim 32, Yunten discloses:

interface units (plurality of ports) that are connected to an external network and that each interface unit have ports that accept messages from elements within the external network (receiving the data frame through a first one of the plurality of ports, col4 lines 24-30).

that the interface units, called for description purposes a "source interface unit," selects a source or starting virtual-channel identifier (VCI) for an ATM cell to be switched within the ATM switch (determining a virtual channel of a plurality of virtual channels available for general data flow on which the data frame was received, col4 lines 59-64).

Yunten however fails to disclose the limitations of a storing the data frame in one of a plurality of buffers, the buffer being associated with the virtual channel on which the data frame was received.

Bandai however discloses of transmitting ATM cells into an input port (#1), to it's associated cell buffer (7a1), of a plurality of ports and buffers, of the switch element to be temporarily stored (storing the data frame in one of a plurality of buffers, col3 lines 63-66) and gives the motivation for incorporating the buffer for traffic control. It should be obvious to a person skilled in the art that each port is associated with a virtual channel, which is associated with a specific buffer.

It will thus be obvious to a person skilled in the art to incorporate the method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches (plurality of small switches) for routing ATM cells disclosed by Yunten with the method to store ATM cells in a cell buffer disclosed by Bandai, to effectively carry out traffic control (congestion prevention) and manage the ATM cells in a switch.

Regarding claim 33, Yunten and Bandai all the limitations of claim 33. More specifically Yunten discloses a method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches (plurality of small switches) coupled to interface units (the larger Fibre Channel switch comprising a plurality of small Fibre Channel switches, col2 lines 40-40).

Regarding claim 34, Yunten and Bandai all the limitations of claim 34. More specifically Yunten discloses the VC switches are electronic modules that contain a microprocessor (a processor connected to each of the plurality of small switches, col4 lines 64-66).

Regarding claim 35, Yunten and Bandai all the limitations of claim 35. More specifically Bandai discloses of transmitting ATM cells into an input port (#1), to it's associated cell buffer (7a1), of a plurality of ports and buffers, of the switch element to be temporarily stored (buffer is further associated with the port through which the data frame was received, col3 lines 63-66). It should be obvious to a person skilled in the art

that each port is associated with a virtual channel, which is associated with a specific buffer.

Regarding claim 36, Yunten and Bandai all the limitations of claim 36. More specifically Yunten discloses that the switch has separate ports for each of its connections with VC switches and routes the ATM cell to the appropriate destination VC switch based in the VPI/VCI field in the received ATM cell (retrieving the identity of the virtual channel from an inter-frame fill word received by the small Fibre Channel switch prior to receiving the data frame (header), col7 lines 55-58).

Regarding claim 46, Yunten and Bandai disclose all the limitations of claim 46. More specifically, Yunten discloses configuring an ATM switch (Fibre Channel switch) that includes:

several VC switches (plurality of small switches, each switch comprising) comprising:

coupled to interface units (col2 lines 40-40) for routing ATM cells with a generic addressing (plurality of ports, figure 1 and figure 2, col1 line 6-10).

together with affiliated memory for storing software instructions (a memory, col5 lines 1-2).

that the VP switch preferably has separate ports for each of it's connections with VC switches (a plurality of internal ports capable of connecting

to other small switches, the plurality of internal ports being a subset of the plurality of ports, col7 lines 55-57).

a table established during configuration of the switch in which the first column indicates the possible sources for an ATM cell received by one of VC switches (col5 lines 16-20) and another column listing starting VCIs for ATM cells (memory storing an identity of a virtual channel associated with each source port and available for general data flow, col5 lines 34-37).

that the interface units, called for description purposes a "source interface unit," selects a source or starting virtual-channel identifier (VCI) for an ATM cell to be switched within the ATM switch based on destination from ATM cell (logic operable to determine an identification of a destination of the data and to determine an identification of a virtual channel, col4 lines 59-64).

that the VC switches are electronic modules that contain a microprocessor (a processor connected to each of the plurality of small switches, col4 lines 64-66).

that the VP switch preferably has separate ports for each of it's connections with VC switches (each small switch is connected to a subset of the plurality of small switches via internal ports, col7 lines 55-57).

interface units (plurality of ports) that are connected to an external network and that each interface unit have ports that accept messages from elements within the external network (plurality if small switches are each connectable to an external device via external ports, col4 lines 24-30).

Yunten however fails to disclose a plurality of buffers, each buffer being associated with a respective virtual channel.

Bandai however discloses of transmitting ATM cells into an input port (#1), to it's associated cell buffer (7a1) of the switch element to be temporarily stored (each buffer being associated with a respective virtual channel, col3 lines 63-66) and gives the motivation for incorporating the buffer for traffic control. It should be obvious to a person skilled in the art that each port is associated with a virtual channel, which is associated with a specific buffer.

It will thus be obvious to a person skilled in the art to incorporate the method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches (plurality of small switches) for routing ATM cells disclosed by Yunten with the method to store ATM cells in a cell buffer disclosed by Bandai, to effectively carry out traffic control (congestion prevention) and manage the ATM cells in a switch.

Regarding claim 47, Yunten, and discloses all the limitations of claim 47. More specifically, Yunten discloses the VC switches are electronic modules that contain a microprocessor (col4 lines 64-66). Yunten further discloses that the microprocessor of each VC switch is coupled with an affiliated memory for storing and executing instructions and that the source interface unit (of each switch) selects the starting VCI

from a table established during configuration of the switch (processor sends at least one routing table entry to each small switch, each small switch storing the entry in the routing table, col5 lines 1-4). As mentioned in claim 12, the entry of the routing table comprises a destination and a virtual channel associated with the destination.

Regarding claim 48, Yunten and Bandai disclose all the limitations of claim 48. More specifically, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells from the source interface units to destination interface units (identification of the virtual channel available for general data flow is determined on the source of the data, col4 lines 2-6).

Regarding claim 49, Yunten and Bandai disclose all the limitations of claim 49. More specifically, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells from the source interface units to destination interface units (identification of the virtual channel available for general data flow is determined on the destination of the data, col4 lines 2-6).

6. Claims 12, 13, 17, 18, 19, and 22 are rejected under 35 U.S.C. 103(a) as being anticipated by Yunten (U.S Patent No. 5,867,499), in view of Endo et al. (U.S Patent No. 6,275,494), hereinafter referred to as Yunten and Endo.

Regarding claim 12, Yunten fail to disclose the specific limitations related to claim 12.

Endo however discloses of a processor that retrieves the transit flow management table using the destination IP address, source IP address and port number of the received packet (determining the destination of the data) to check whether the table has a match content. If a matching content is detected in the table, the processor reads out the output interface number, output VPI, and output VCI, (retrieving an identity of a port from a routing table, the port identity being associated with the destination in the routing table) and sets the output VCI to the ATM header, adds the output interface number (output port) to the ATM header and sends the created cells to the output interface number corresponding to the output interface number added to the cell (the data and the information identifying the first virtual channel is sent from the first small switch to the second small switch through the port, col8 lines 7-18) and gives the motivation for a method to effectively assign virtual channel connection for each packet for effective cut through.

It will thus be obvious to a person skilled in the art to incorporate the method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches for routing ATM cells disclosed by Yunten with the method if identifying a port and virtual channel of the ATM cell from a routing table disclosed by Endo, to effectively assign virtual connection channels for each ATM cell in a switching system.

Regarding claim 13, Yunten and Endo disclose all the limitations of claim 13. As mentioned with claim 2, Yunten discloses the VC switches are electronic modules that contain a microprocessor (a processor connected to each of the plurality of small switches, col4 lines 64-66). Yunten further discloses that the microprocessor of each VC switch is coupled with an affiliated memory for storing and executing instructions and that the source interface unit (of each switch) selects the starting VCI from a table established during configuration of the switch (processor sends at least one routing table entry to each small switch, each of the small switches storing the entry in the routing table, col5 lines 1-4). As mentioned in claim 12, the entry of the routing table comprises a destination and a port identity associated with the destination.

Regarding claim 17, Yunten and Endo disclose all the limitations of claim 17 as mentioned in claim 12. Endo discloses of a processor that retrieves the transit flow management table using the destination IP address, source IP address and port number of the received packet (determining the destination from the received data) to check whether the table has a match content. If a matching content is detected in the table, the processor reads out the output interface number, output VPI, and output VCI, and sets the output VCI to the ATM header (choosing the second virtual channel comprising looking up the identity of the destination in a routing table, and choosing as the second virtual channel the virtual channel associated with the destination in the routing table, col8 lines 7-18).

Regarding claim 18, Yunten and Endo disclose all the limitations of claim 18 as mentioned in claim 13. Yunten discloses the VC switches are electronic modules that contain a microprocessor (a processor connected to each of the plurality of small switches, col4 lines 64-66). Yunten further discloses that the microprocessor of each VC switch is coupled with an affiliated memory for storing and executing instructions and that the source interface unit (of each switch) selects the starting VCI from a table established during configuration of the switch (processor sends at least one routing table entry to each small switch, each of the small switches storing the entry in the routing table, col5 lines 1-4). As mentioned in claim 12, the entry of the routing table comprises a destination and a virtual channel associated with the destination.

Regarding claim 19, Yunten and Endo disclose all the limitations of claim 19 as mentioned in claim 12. Endo discloses of a processor that retrieves the transit flow management table using the destination IP address, source IP address and port number of the received packet (determining the destination of the data) to check whether the table has a match content. If a matching content is detected in the table, the processor reads out the output interface number, output VPI, and output VCI, (retrieving an identity of a port from a routing table, the port identity being associated with the destination in the routing table) and sets the output VCI to the ATM header, adds the output interface number (output port) to the ATM header and sends the created cells to the output interface number corresponding to the output interface

number added to the cell (the data and the information identifying the second virtual channel is sent from the second small switch to the third small switch through the port, col8 lines 7-18).

Regarding claim 22, Yunten and Endo disclose all the limitations of claim 22 as mentioned in claim 12. Endo discloses of a processor that retrieves the transit flow management table using the destination IP address, source IP address and port number of the received packet (determining the destination of the data) to check whether the table has a match content. If a matching content is detected in the table, the processor reads out the output interface number, output VPI, and output VCI, (retrieving an identity of a port from a routing table, the port identity being associated with the destination in the routing table) and sets the output VCI to the ATM header, adds the output interface number (output port) to the ATM header and sends the created cells to the output interface number corresponding to the output interface number added to the cell (wherein the data is sent from the third small switch to the destination through the identified port, col8 lines 7-18).

8. Claims 37-45 are rejected under 35 U.S.C. 103(a) as being anticipated by Yunten (U.S Patent No. 5,867,499), in view of Bandai et al. (U.S Patent No. 6,768,741), further in view of Endo et al. (U.S Patent No. 6,275,494), hereinafter referred to as Yunten, Bandai, and Endo.

Regarding claim 37, Yunten and Bandai fail to disclose the specific limitations related to claim 12. Endo however discloses:

of a processor that retrieves the transit flow management table using the destination IP address, source IP address and port number of the received packet (determining the destination of the data frame) to check whether the table has a match content.

if a matching content is detected in the table, the processor reads out the output interface number, output VPI, and output VCI, (determining which port to output the data frame through)

and sets the output VCI to the ATM header (determining an identity of a virtual channel to output the data frame on),

adds the output interface number (output port) to the ATM header and sends the created cells to the output interface number corresponding to the output interface number added to the cell (adding information that identifies the virtual channel on which the data frame is output and output the data frame and the added information through the determined port, col8 lines 7-18) and gives the motivation for a method to effectively assign virtual channel connection for each packet for effective cut through.

It will thus be obvious to a person skilled in the art to incorporate the method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches for routing ATM cells which incorporates buffers disclosed by Yunten and Bandai with the method of identifying a port and virtual channel of the ATM cell from a routing table

disclosed by Endo, to effectively assign virtual connection channels for each ATM cell in a switching system.

Regarding claim 38, Yunten, Bandai, and Endo disclose all the limitations of claim 38. More specifically, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells (identity of the virtual channel to output the data frame on is determined based on the source of the data, col4 lines 2-6).

Regarding claim 39, Yunten, Bandai, and Endo disclose all the limitations of claim 39. More specifically, Yunten discloses that the VCI assignments are based on the interface units, i.e. sources and destinations, coupled to the switch and operating the configured ATM switch to route ATM cells (identity of the virtual channel to output the data frame on is determined based on the destination of the data, col4 lines 2-6).

Regarding claim 40, Yunten, Bandai, and Endo disclose all the limitations of claim 40. More specifically, Endo discloses of a processor that retrieves the transit flow management table using the destination IP address, source IP address and port number of the received packet to check whether the table has a match content. If a matching content is detected in the table, the processor reads out the output interface number, output VPI, and output VCI, (retrieving the identity of the port associated with

the identity of the destination of the data frame from a routing table stored in a memory of a small switch, col8 lines 7-18).

Regarding claim 41, Yunten, Bandai, and Endo disclose all the limitations of claim 41. More specifically, Endo discloses of a processor that retrieves the transit flow management table using the destination IP address, source IP address and port number of the received packet to check whether the table has a match content. If a matching content is detected in the table, the processor reads out the output interface number, output VPI, and output VCI, (retrieving the identity of the virtual channel associated with the identity of the destination of the data frame from a routing table stored in a memory of a small switch, col8 lines 7-18).

Regarding claim 42, Yunten, Bandai, and Endo disclose all the limitations of claim 42. More specifically Yunten discloses a method for configuring an ATM switch (Fibre Channel switch) that includes several VC switches (plurality of small switches) coupled to interface units (the larger Fibre Channel switch comprising a plurality of small Fibre Channel switches, col2 lines 40-40).

Regarding claim 43, Yunten, Bandai, and Endo disclose all the limitations of claim 43. More specifically Yunten discloses the VC switches are electronic modules that contain a microprocessor (a processor connected to each of the plurality of small switches, col4 lines 64-66).

Regarding claim 44, Yunten, Bandai, and Endo disclose all the limitations of claim 44. More specifically, Yunten discloses the VC switches are electronic modules that contain a microprocessor (col4 lines 64-66). Yunten further discloses that the microprocessor of each VC switch is coupled with an affiliated memory for storing and executing instructions (storing the routing table entry in the routing table stored in the memory of the small switch) and that the source interface unit (of each switch) selects the starting VCI from a table established during configuration of the switch (sending a routing table entry from the processor to the small switch, col5 lines 1-4). As mentioned in claim 12, the entry of the routing table comprises a destination and a virtual channel associated with the destination.

Regarding claim 45, Yunten, Bandai, and Endo disclose all the limitations of claim 45. More specifically Yunten discloses routing ATM cells with a generic addressing scheme (col1 line 6-10). And that a ATM header includes virtual connection identifier (VCI) label which indicates that transport connection which is selected by the "source interface unit" (adding the identity of the virtual channel to an inter-frame fill word associated with the data frame (header), col1 lines 24-28). It is noted that the applicant states that the FILL is not part of the data frame, but contains information about the data frame that follows the particular FILL, which correlates to an ATM header that precedes the data. Yunten further discloses that a "source interface unit," selects a source or starting virtual-channel identifier (VCI) for an ATM cell to be switched within the ATM switch (adding

information that identifies the virtual channel and outputting the data frame and the added information through the determined port comprises outputting the inter-frame fill word and then outputting the data frame, col4 lines 59-64).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Hamami. (U.S 5,959,972), Method of Port/Link Redundancy in an ATM Switch.

b) Sekini et al (U.S 2002/0075798), ATM Switching Unit.

c) Wrenn (U.S 6,847,647), Method And Apparatus For Distributing Traffic Over Multiple Switched Fiber Channel Routes.

d) Gupta (U.S 6,278,714), Efficient Hardware Implementing Of Virtual Circuit Bunching.

e) Dhong et al (U.S 2002/0163881), Communications Bus With Redundant Signal Paths and Method For Compensating For Signal Path Errors In A Communication Bus.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Ngo whose telephone number is (571) 272-8398. The examiner can normally be reached on Monday-Friday 7am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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